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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/617,858 | 07/17/2000 | Marie B. O'Regan | UA0026 US NA | 8333 |

23906 7590 06/19/2003

E I DU PONT DE NEMOURS AND COMPANY
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WILMINGTON, DE 19805

EXAMINER

LOUIE, WAI SING

ART UNIT PAPER NUMBER

2814

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,858

Applicant(s)

O REGAN ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 3, 5, 13, 19, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanai et al. (US 6,121,727).

With regard to claims 1, 3, and 5, Kanai et al. disclose an organic electroluminescent device, O-LED, (col. 3, line 20 to col. 16, line 25 and fig. 5) comprising:

- An anode 2 comprising a semi-transparent layer (col. 3, lines 60-62), which is made of silver (col. 3, lines 49-50). Inherently, silver has a high reflectivity and high work function;
- A cathode comprising at least one first cathode layer 5 of a low work function material, which is made of metal (col. 9, lines 46-61 and col. 10, lines 1-3) and at least one second cathode layer 7 made of metal of high work function such as gold silver, and platinum, which has high reflectivity (col. 10, lines 27-35).

With regard to claim 13, the second cathode layer 7 comprises silver (col. 10, line 34).

With regard to claims 19 and 24, Kanai et al. disclose:

- The semi-transparent layer 2 has a first surface adjacent to the cathode and an opposite second surface (fig. 5). The semi-transparent layer 2 is ITO (col. 10, lines 54-55 and fig. 3);
- The anode further comprising a buffer (passivation) layer 3a' adjacent to the first surface (fig. 5), the buffer layer comprising a passivation material is polyaniline blend (col. 5, line 44).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 6-10, 12, 14-18, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai et al. (US 6,121,727) in view of Helmut F. Wolf (Semiconductor, copyright 1971, p. 424).

With regard to claims 2 and 4, Kanai et al. do not disclose the value of work function of silver, platinum, and gold. However, these are well known data such as disclosed in the

publication "Semiconductor" by Wolf in p. 424 table 5.4, the work function of silver is 4.3-5.1 eV, gold is 4.7-5.0 eV, and platinum is 5.2-5.3eV. Therefore, the semi-transparent silver layer 2 has a work function of greater than 4 eV and the second cathode layer 7 has a work function of greater than 4 eV.

With regard to claims 6-10, 12, and 20-23, Kanai et al. do not disclose the semi-transparent layer 2 has a reflectivity of 86% to 96%. However, this layer is made of silver (col. 3, lines 49-50), which could be a total reflector. Therefore, it would have been obvious layer 2 could have a reflectivity of 86% to 96%. The thickness of layer 2 is 10 to 500 nm (col. 3, line 64).

With regard to claims 14-18, Kanai et al. do not disclose the second cathode layer 7 has a reflectivity of 86% to 96%. However, this layer is made of silver (col. 10, line 34), which is air-stable (col. 10, line 32) and silver could be a total reflector. Therefore, it would have been obvious layer 2 could have a reflectivity of 86% to 96%.

Response to Arguments

Applicant's arguments with respect to claims 1-10 and 12-24 have been considered but are moot in view of the new ground(s) of rejection based on a newly cited reference.

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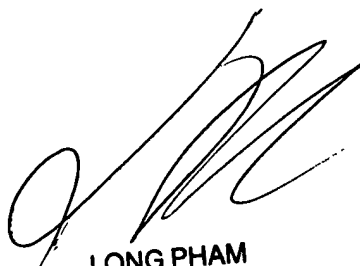
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (703) 305-0474.

The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ws1
June 2, 2003



LONG PHAM
PRIMARY EXAMINER